THE SMITHSONIAN REPORT FOR 1895.

This report, which has just been issued, contains two lengthy articles of unusual value to the student of American anthropology.

The first is by Dr. Franz Boas, on 'The Social Organization and Secret Societies of the Kwakiutl Indians.' It covers 430 pages, is abundantly illustrated, and the material, personally collected by the author, is presented with care and accuracy. Many songs are given, with the original text, an interlinear translation and the accompanying music. It is a contribution of rare worth to our knowledge of aboriginal thought.

The second article, of 230 pages, is by Dr. Walter J. Hoffman, on 'The Graphic Art of the Eskimos.' This is a subject on which the author has been collecting for many years, and his descriptions seem to be exhaustive. The illustrations are abundant and beautiful, and the development and connections of the Eskimoan cultures are set forth with detail.

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*NOTES ON INORGANIC CHEMISTRY.*

The *Chemical News* for April 1st contains a paper read by Professor Andrew Gray and Professor J. J. Dobbie before the Royal Society 'On the Connection between the Electrical Properties and the Chemical Composition of Glass.' Previous experiments had shown that resistance in flint glass was greater than in potash- and soda-lime glass. Two of the glasses in the present series were specially made flint glasses with very high content of lead. Previously a glass with 40.5% lead oxid showed specific resistance of $8,400 \times 10^{10}$ ohms. Of the new glasses, one with lead oxid 42.14% gave a resistance too high to measure, but certainly over $18,000 \times 10^{10}$ ohms at 130°, while one with 46.6% lead oxid gave above $35,000 \times 10^{10}$ ohms at all temperatures to 135°. A barium crown glass, which was a borosilicate of barium and aluminum showed a specific resistance above $59,000 \times 10^{10}$ ohms up to 140°. A 'Jena' glass, which is essentially a borosilicate of zinc, sodium and magnesium, showed a resistance of $596.5 \times 10^{10}$ at 43° and $0.2 \times 10^{10}$ at 140°. This low resistance was to be anticipated from the high percentage of soda, but the very high resistance of the barium glass was unexpected, as this glass might have been supposed to resemble a lime glass rather than a lead glass. While it is possible this may be influenced by the boric acid present, it may also prove true that the resistance is rather affected by the high atomic weight of the barium. The 'Jena' glass showed very considerable polarization effects, and the same was true of the lead glass, while the barium glass showed little or no sign of polarization.

The same number of the *Chemical News* contains an article by P. Truchot, taken from the *Revue générale des sciences* on the occurrence of thorite, monazite and zircon. The monazite in western North Carolina is richest in thorium and occurs in sands from a coarse mica rock. The monazite crystals are plainly seen disseminated in the rock. When the rock contains gold the monazite constitutes a very valuable by-product. Monazite is found in Idaho, where it is one of the original constituents of Idaho granite. Sands from the lakes of Idaho City have yielded, after washing, monazite sand containing 70% monazite. The European supply comes almost exclusively from the sea-shore sand in southern Bahia, Brazil. The sand is loaded directly and with very little expense on board ships. It contains 4 or 5 per cent. of thoria. Deposits of monazite are also found in Canada (Villeneuve mine, Ottawa), in several different States of Brazil, and in several other countries of South America. Zircon is

widely distributed, but the most important deposit, discovered last year, is on the northeast side of 'New Zealand' (*sic*, Tasmania), midway between Enim Bay and Circular Head. The deposit covers an area of 105 acres and has a thickness of 20 centimeters. It is composed almost entirely of zircon and is extracted simply by washing. It runs 62 to 64 per cent. zirconia, with variable quantities of the other rare earths. The author, in conclusion, states that the supply of rare earths tends to increase more and more, and, great as may become the development of incandescent gas-lighting, the demand can never exceed the supply.

IN a paper before the Cambridge Philosophical Society, Messrs. Heycock and Neville continue their studies of alloys, exhibiting Röntgen-ray photographs of plates of various gold alloys. In gold-sodium alloys with less than 30 per cent. gold they consist of well-developed, very transparent crystals of sodium in a matrix which contains gold. Alloys with more than 30 per cent. gold show very opaque needles of gold in a less opaque matrix, which was the same as the matrix of the former alloy. Similar results were obtained with gold-aluminum and gold-copper alloys. The gold-aluminum alloys showed well-defined crystals of Roberts-Austen's compound $AuAl_2$.

IN the *Comptes Rendus* E. Finck describes three compounds formed by the action of carbon monoxid on palladium chlorid, $PdCl_2,CO$, $PdCl_2(CO)_2$, and $(PdCl_2)_2(CO)_3$. These compounds are interesting in that they are analogous to the similar compounds of carbon monoxid with platinous chlorid. J. L. H.

## SCIENTIFIC NOTES AND NEWS.

### THE RECENT ECLIPSE OF THE SUN.

IN the last number of the *Independent* Professor C. A. Young condenses from the *Observatory* an account of a recent meeting of the Royal Astronomical Society devoted to the solar eclipse at which several of the observers presented preliminary reports of their work, and exhibited some very interesting photographs of the corona, and of various eclipse spectra. Professor Young writes:

According to Professor Turner's photographs (and, of course, all the others agree substantially, which is by no means the case with visual observations of that phenomenon), the corona was of the type expected and predicted for the present stage of the sun-spot period. It had the form of an irregular four-rayed star, with long streamers projecting from the sun-spot zones to a distance considerably exceeding the sun's diameter, and others, shorter and narrower, but more distinct in outline, from the polar regions. In one of the long streamers Professor Turner's polariscopic camera showed distinct polarization, indicating the presence of something besides gas—dust or mist of some kind.

The corona was hardly as bright as usual, so that Mr. Newall did not succeed in his attempt at a spectroscopic determination of its rotation; but Captain Hills, of the Astronomer Royal's party, was able to get fine photographs of its spectrum, and to reobserve the violet lines first detected in 1893, and to determine their position accurately.

He also obtained (and with a *slit*-spectroscope, a new success) excellent photographs of the 'flash spectrum.' It shows hundreds of bright lines, and so far is in entire agreement with the visual observation of the writers' made twenty-seven years ago; but Captain Hills agrees with Sir Norman Lockyer that it cannot be described as a reversal of the Fraunhofer lines, as regarded by most astronomers, because 'the lines have different relative intensities; strong Fraunhofer lines are absent in the flash, and bright lines are present in the latter which are absent, or very faint, in the solar spectrum.' Mr. Fowler, Sir Norman Lockyer's assistant, was also present with his prismatic-camera negatives, and concurred with Captain Hills on this point. Both gentlemen, however, have always been faithful followers of Lockyer in his peculiar views, and took the same ground in regard to Mr. Shackleton's photograph in 1896.